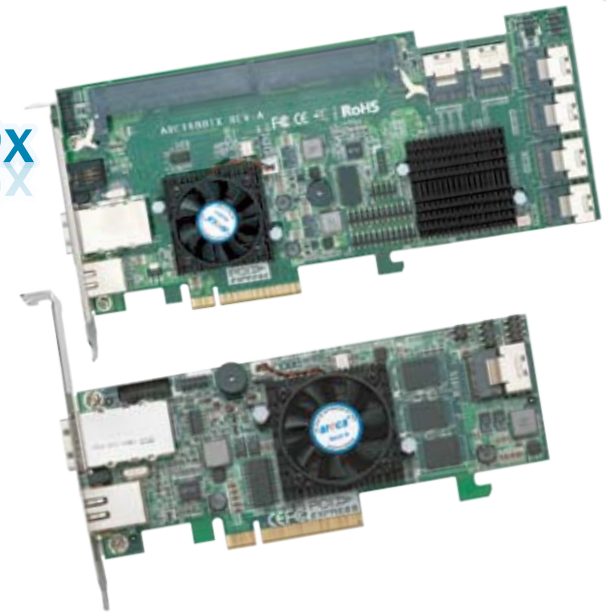
areca® At the Heart of Storage

ARC-1680-i/1680LP/1680x

(8 ports PCIe SAS RAID Controllers)

ARC-1680ix

(8/12/16/24 internal ports and 4 external ports PCIe SAS RAID Controllers)



Areca high-performance ARC-1680 series PCIe to SAS RAID host controller can provide up to (128) SAS/SATA II peripheral devices using SAS expanders. The controllers are based on the same RAID kernel of field-proven external RAID adapter and same device drivers with widely used SATA RAID controller. Applications that benefit most features from these controllers include NAS, server RAID solutions, web servers, supercomputing, near-line backup, security systems and streaming applications.

Highlights

- Supports up to (128) SAS or SATA II drives using SAS expanders
- 3Gb/s throughput at each drive ports
- Support up to 4GB DDR2-533 cache (ARC-1680ix-12/16/24)
- Family includes 4/8/12/16/24 internal or 4/8 external SAS ports for easy expansion
- Intel RAID engine to support highest speed RAID 6
- Online capacity expansion, RAID level/stripe size migration
- Online volume set growth
- Redundant flash image for adapter availability
- Support greater than 2TB per volume set and battery backup module (BBM)
- SES2, SMP and SGPIO enclosure management
- Broad operating support including Windows, Linux (open source), FreeBSD(open source), Soaris(open source) and more systems

SAS for Maximum Scalability

SAS builds on parallel SCSI by providing higher performance, improving data availability, and simplifying system design. The SAS interface supports both SAS disk drives for data-intensive applications, and Serial ATA (SATA) drives for low-cost bulk storage of reference data.The ARC-1680 series controllers include 4/8/12/16/24 internal SAS port or 4/8 external SAS ports for easy expansion. When Areca SAS RAID controller used with SAS expanders, the adapter can provide up to (128) devices through one or more SAS JBODs, making it an ideal solution for enterprise-class storage applications that call for maximum configuration flexibility.

Unparalleled Performance

The SAS RAID controllers raise the standard to higher performhance levels with several enhancements including Intel new high-performance IOP348 I/O Processor, a DDR2-533 memory architecture and high performance x8 Link PCIe host interface bus interconnection. ARC-1680ix-12/16/24 series include one DIMM socket with default 512MB of ECC DDR2-533 SDRAM with optional battery backup module, upgrade to 4GB. The ARC-1680LP/1680i/1680x/1680ix-8 low profile boards default support 512MB on-board memory.

Unsurpassed Data Availability

The RAID 6 can offer fault tolerance greater that RAID 1 or RAID 5 but only consumes the capacity of 2 disk drives for distributed parity data. The SAS RAID controllers with extreme performance RAID 6 engine installed provide the highest RAID 6 feature to meet this requirement. The SAS RAID controllers can also provide RAID levels 0, 1, 1E, 3, 5, 6,10, 30, 50, 60, Single Disk or JBOD for maximum configuration flexibility. Its high data availability and protection derives from the following capabilities: Online RAID Capacity Expansion, Array Roaming, Online RAID Level / Stripe Size Migration, Global Online Spare, Automatic Drive Failure Detection, Automatic Failed Drive Rebuilding, Disk Hot-Swap, Online Background Rebuilding, Instant Availability/Background Initialization, Auto Reassign Sector, Redundant Flash Image and Battery Backup Module. Greater Than 2TB support allows for very large volume set application in 64-bit environment such as data-mining and managing large databases.

Maximum Interoperability

The SAS RAID controller supports broad operating system including Windows 2008/Vista/2003/XP/2000, Linux (Open Source), FreeBSD (Open Source), Solaris (Open Source), Mac and more, along with key system monitoring features such as enclosure management(SES2, SMP & SGPIO) and SNMP function. Our products and technology are based on extensive testing and validation process; same as Areca SATA II RAID adapter field-proven compatibility with operating systems, motherboards, applications and device drives.

Easy RAID Management

The controllers contain an embedded McBIOS RAID manager that can access via hot key at BIOS boot-up screen. This pre-boot RAID manager can use to simplify the setup and management of RAID controller. The adapter firmware also contains a browser-based McRAID storage manager which can be accessed through the Ethernet port or ArcHttp proxy server. The McRAID storage manager allows local and remote to create and modify RAID set, volume set, and monitor RAID status from standard web browser. The Single Admin Portal (SAP) monitor utility can support one application to scan multiple RAID units in the network. The Disk Stress Test (DST) utility kicks out disks meeting marginal spec before the RAID unit is actually put on-line for real business.

Adapter Architecture

- Intel Dual Core 1200 MHz IOP348 I/O processor for RAID core and SAS microcode
- 512MB on-board DDR2-533 SDRAM with ECC protection (ARC-1680LP/1680i/1680x/1680ix-8)
- One 240-pin DDR2-533 DIMM socket with default 512MB of SDRAM with ECC protection, upgrade to 4GB (ARC-1680ix-12/16/24)
- Support write-through or write-back cache
- Support 4 to 24 internal and 4 to 8 external SAS ports
- Multi-adapter support for large storage requirements
- BIOS boot support for greater fault tolerance
- BIOS PnP (plug and play) and BBS (BIOS boot specification) support
- Support extreme performance RAID 6 function
- NVRAM for RAID event & transaction log
- Redundant flash image for adapter availability
- Battery Backup Module ready (Option)
- RoHS Compliant

RAID Features

- RAID level 0, 1,1E, 3, 5, 6, 10, 30, 50, 60, Single Disk or JBOD
- Multiple RAID selection
- Online array roaming
- Online RAID level/stripe size migration
- Online capacity expansion and RAID level migration simultaneously Online volume set growth
- Instant availability and background initialization
- Automatic drive insertion / removal detection and rebuilding Greater than 2TB per volume set (64-bit LBA support)
- Disk scrubbing/ array verify scheduling for automatic repair of all
- configured RAID sets
- Support intelligent power management to save energy and extend service life
- Support NTP protocol synchronize RAID controller clock over the on board Ethernet port

Disk Bus Interface

- 4/8/12/16/24 internal/SAS ports or 4/8 external SAS ports
- Up to (128) SAS or 3 SATA II drives using SAS expanders
- Up to 3Gb/s per port

• Electrical

Power Requirements	1.10W max. +3.3V
	10.92W max. +12V

Host Connectivity

- PCIe x8 lane width host interface

Monitors/Notification

- System status indication through global HDD activity/fault connector, individual fault connector, LCD/I2C connector and alarm buzzer
- SMTP support for email notification
- SNMP support for remote manager
- Enclosure management (SES2, SMP and SGPIO) ready

RAID Management

- Field-upgradeable firmware in flash ROM

In-Band Manager

- Hot key "boot-up" McBIOS RAID manager via M/B BIOS
- Web browser-based McRAID storage manager via ArcHttp proxy server utility
- Support Command Line Interface (CLI)
- API library for customer to write monitor utility
- Single Admin Portal (SAP) monitor utility
- Disk Stress Test (DST) utility for production

Out-of-Band Manager

- Firmware-embedded web browser-based McRAID storage manager, SMTP manager and SNMP agent and Telnet function via Ethernet port
- API library for customer to write monitor utility
- Support Push Button and LCD display panel

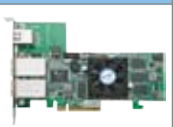
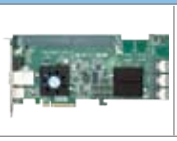
Operating System

- Windows 2000/XP/Server 2003/Vista/2008
- Linux
- FreeBSD
- Novell Netware 6.5
- Solaris 10 x86/x86_64
- SCO Unixware 7.x.x
- Mac OSX 10.4.x/10.5.x (EFI BIOS support)

For more information & latest supported OS listing visit **www.areca.com.tw**

• Environment

Operating	Temperature: +5 c to +50 c Humidity: 15-80%, non-condensing
Storage Temperature	Temperature: -40 c to 70 c Humidity: 5-90%, non-condensing

Model Name	ARC-1680-i	ARC-1680LP	ARC-1680x	ARC-1680ix-8	ARC-1680ix-12	ARC-1680ix-16	ARC-1680ix-24
I/O Processor	Intel IOP348 1200MHz						
On-Board Cache	DDR2-533 512MB				One DDR2-533 Socket with Default 512MB Upgrade to 4GB		
Drive Connector	2 x SFF-8087	1 x SFF-8087 1 x SFF-8088	2 x SFF-8088	2 x SFF-8087 1 x SFF-8088	3 x SFF-8087 1 x SFF-8088	4 x SFF-8087 1 x SFF-8088	6 x SFF-8087 1 x SFF-8088
Drive Support	Up to 128 SAS/SATA HDDs, Using SAS Expander						
Management Port	In-Band: PCIe /Out-of-Band: BIOS, LCD and LAN Port						
Enclosure Ready	Individual Activity/Fault Header, SGPIO, SMP and SES2						
Form Factor	Low Profile: 62(H) x 168(L) mm			62(H) x 210(L) mm	Full Height: 98.4(H) x 237.5(L) mm		
Products View							

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